



Gauhati University

Gopinath Bordoloi Nagar, Guwahati-781014
Assam::India

Notice Inviting Quotation

NIQ No: GU / Regr (SF) / N/O / 2017 / 333

Date: 29 / 08 / 2017

The Gauhati University invites sealed quotations from reputed manufacturers/dealers/suppliers for supply, installations etc., of **Field Emission Scanning Electron Microscope (FE-SEM) along with Energy Dispersive Spectroscopy (EDS) and accessories**. The last date of submitting the quotations is 15 days from the date of publication of this advertisement. The sealed quotations are to be submitted to **The Registrar, Gauhati University, Guwahati-14, Assam, India** on all working days during 10 am to 4:30 pm.

Refer to Annexure I for TECHNICAL SPECIFICATIONS

*Gauhati University reserves the right to modify/cancel the requirements.

**All terms and conditions will be as per Gauhati University rules, regulations and decisions.

Information to Bidders:

1. Single Bid:

(a) In case of single bid, quotations will have to be submitted in single bid, in a properly sealed cover; and the address of the firm submitting the quotation and the Officer to whom the quotation is addressed, must appear distinctly on the sealed cover.

NOTE: The bid documents are not transferable and the firm's seal and signature of the authorized official must appear on all the papers and envelopes submitted.

(b) The bid must mention the prices of all items asked for individually and then summed up at last i.e. basic price and other charges such as Packing, Freight, insurance, Installation & commissioning charge, GST/Tax etc. as applicable;

(c) Annual Maintenance Contract (AMC) rate (after expiry of warranty period) is to be clearly indicated – preferably in both comprehensive and non-comprehensive terms, *failure to which the offer may not be considered even if it turns out to be at the lowest price.*

(d) **Details of the technical features of the offered equipment along with Standard Technical literature on each of the items offered**

(e) Dealership certificate on the offered products in case of dealer/s;

(d) List of reputed organizations/Institutions, where similar orders have been executed (copies of the purchase/work orders will have to be enclosed);

(f) **Warranty: At least three year comprehensive warranty should be included. Extended warranty should be quoted separately (Offers with extended warranties may be given preference). The terms and period of warranty should be in detail for each of the items under warranty.**

(g) After Sales Service: The name & address of the nearest available authorized service centre to Gauhati University, Guwahati, should be stated in the quotation.

2. Rates should be quoted up to Gauhati University.

Note: Vague terms like "packing, forwarding, transportation etc. extra" without mentioning the specific amount will not be accepted. Such offers shall be treated as incomplete and rejected.

Bidders shall indicate their rates in clear/visible figures as well as in words and shall not alter/overwrite/make cutting in the quotation. In case of a mismatch, the rates written in words will prevail.

3. **Validity:** Quoted rates must be valid for **120 days**.

4. **Pre-installation requisites:** Pre-installation requisites (electrical/floor/space/air-conditioning etc.) if any should invariably be mentioned clearly. Installation/ Training will be the full responsibility of the supplier/ Indian Agent.

5 **Genuine Pricing:** Vendor is to ensure that quoted price is not more than the price offered to any other customer in India to whom this particular item has been sold, particularly to IIT/Institutes and other Government Organization. Copy of the latest price list for the quoted item, applicable in India, must be submitted.

6. **Road permit, Customs Duty, Clearance Charges should be taken care of by the supplier, with the DSIR certificates etc. to be provided from the University side, if required.**

7. **Delivery:** (a) Delivery of goods at Gauhati University will have to be supplied within the agreed period from the date of issue of the Purchase Order.

(b) **Safe delivery of goods:** All aspects of safe delivery shall be the exclusive responsibility of the vendor. At the destination site, the cartons will be opened only in the presence of Gauhati University user/representative and vendor's representative and the intact position of the seal for not being tampered with, shall form the basis for certifying the receipt in good condition.

(c) **No Part Delivery:** Part shipment will not be acceptable.

8. **Quotation by Fax/E-Mail not Acceptable:** The offers submitted by telex/ telegram/ fax/ E-mail etc. shall not be considered. No correspondence will be entertained on this matter.

9. **Late and delayed tender:** Late and delayed tender will not be considered. In case, any unscheduled holiday occurs on prescribed closing/opening date the next working day shall be the prescribed date of closing/opening.

10. **Conditional tenders not acceptable:** Conditional tenders shall not be accepted on any ground and shall be rejected straightway. In other word, printed conditions mentioned in the tender bids submitted by vendors will not be binding on Gauhati University. *All the terms and conditions for the supply, payment terms, penalty etc. will be as per Gauhati University rules, regulations and decisions and no change in the terms and conditions by the vendors will be acceptable.*

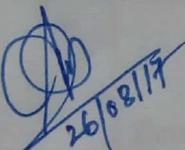
11. **Specifications :** It must be ensured that the offers are strictly as per our specifications. A quotation has to be supported with the printed technical leaflet/literature (wherever applicable) and the specifications mentioned in the quotation must be reflected/ supported by such printed technical leaflet/literature model quoted/tendered specifications should **invariably be highlighted** in the leaflet/literature for easy reference.

12. **Enquiry during the course of evaluation not allowed:** No enquiry shall be made by the bidder(s) during the course of evaluation of the tender till final decision is conveyed to the successful bidder(s). However, the Committee/its authorized representative and office of Gauhati University can make any enquiry/seek clarification from the bidders. In such a situation, the agency shall extend full cooperation. The bidders can also be asked to arrange demo. of the offered items, in a short period notice, as such the bidders have to be ready for the same.

13. The acceptance of the quotation will rest solely with the undersigned, who in the interest of the University is not bound to accept the lowest quotation and reserves the right to itself to reject or partially accept any or all the quotations received without assigning any reasons.

14. **Installation and Commissioning:** Installation, commissioning and training should be included.

15. **Applicable Law :** The contract shall be governed by the laws and procedures established by Govt. of India and subject to exclusive jurisdiction of Competent Court and Forum in Guwahati, India only.



Registrar
Gauhati University

Copies to:

1. Treasurer, Gauhati University
2. Joint Registrar, for publication in the website
3. Office copy for record
4. Notice board

Annexure I

Name of the equipment:

Field Emission Scanning Electron Microscope (FE-SEM) along with Energy Dispersive Spectroscopy (EDS) and accessories.

Technical Specifications:

The 'Field Emission Scanning Electron Microscope (FE-SEM) along with Energy Dispersive Spectroscopy (EDS) and accessories' should be suitable for morphological studies and chemical analysis of a wide variety of samples such as conducting, non-conducting, magnetic; micro to nano scale dimensions; synthetic, natural, biological, geological; powders, thin films, solids, crystals; organic, inorganic; metallic, non-metallic, ceramics, polymers, composites. The required minimum technical specifications of the equipment are as follows:

Sl. No.	Features	Specifications
1.	Resolution	1.5 nm or better at 15 kV 2.5 nm or better at 1kV The resolution should be demonstrated at the time of installation.
2.	Magnification	15x to 10,00,000x or better
3.	Accelerating voltage	0.1 - 30 kV or better
4.	Probe Current	4 pA - 100 nA or better
5.	Electron gun	Schottky Field Emitter
6.	Detectors	a) Chamber SEI detector b) In-Lens SEI detector/Upper secondary electron detector /In column detector or equivalent detector for high resolution imaging in High Vacuum c) BSE detector, detector must be Semi- conductor type d) CL detector e) IR-CCD
7.	Specimen type	Powders, Thin films, Biological, Geological, Crystals, Solids etc. Should provide good resolution even for biological and geological samples.

8.	Specimen Chamber	Must accommodate a specimen size of at least 150 mm diameter. Provision for 8 ports or better. Should be able to accommodate thin film and multipurpose holders. Chamber design should allow changing the specimens quickly. Should be suitable for EDS measurements. Accessory ports for EDS/WDS attachments should be available.
9.	Specimen Stage	5 Axes computer controlled motorized motor stage. X=100 mm or better Y=100 mm or better Z=50 mm or better Rotation= $\pm 360^\circ$ T = -5° to 70° or better
10.	Electron Optics	The optics should have lens system for high resolution and high magnification images even for highly magnetic materials. Beam Deceleration/ Gentle Beam/ Beam Booster or equivalent technology for high resolution imaging at low voltages. The lenses must be water cooled. The system must have motorized aperture.
11.	Vacuum System	Fully automated pneumatic valve controlled vacuum system. The pumping system may comprise of ion pump, turbo molecular pump backed by rotary pump or equivalent. High vacuum should be assured with hassle free operation.
12.	User interface	Keyboard, mouse, control panel etc. with multifunction for the control and adjustment of frequently used SEM parameters, Manual Joystick control for stage axis.
13.	Computer	Latest compatible branded computer with USB ports and Ethernet ports for data transfer and net connectivity with latest Windows operating system and at least 22 inch TFT monitor with latest laser printer. Must have DVD writer. Service facility for computer related problems should be provided. Specify computer speed, disk space, processor, RAM and graphics card. In total, there must be two computers with the above mentioned specifications be quoted, one for the FE-SEM and the other one for EDS.
14.	Software	a) All original licensed software which is needed for smooth operation of all the functions of the equipment, i.e. for both FE-SEM and EDS.

		<p>b) Complete software package for image recording, image analysis, image modification/separation etc.</p> <p>c) Any further version of the software and updates should be provided free of cost for the equipment i.e. for both FE-SEM and EDS.</p> <p>d) Image recording options in various formats such as TIFF, JPEG, GIF, BMP etc. for the equipment i.e. for both FE-SEM and EDS.</p>
15.	Calibration	Required accessories (standard) for calibration of resolution and magnification.
16.	Working Table	Anti-vibration table for chamber, microscope column, placing computer monitors, mouse, keyboard etc.
17.	Support Computer	A separate branded computer with all loaded software required for analysis of results of FE-SEM and EDS.
18.	Application note	The supplier must provide detailed application notes of FE-SEM, EDS systems in hard and soft copies.
19.	EDS	<p>The EDS system should be state of the art, designed to be integrated with any make of FE-SEM. The required specifications for EDS system are as follows:</p> <p>a) Detector: The EDS detector should be Liquid Nitrogen Free detector based on latest Silicon Drift Detector (SDD) technology with Silicon Nitride window. The SDD crystal should be a large area crystal having size of 20 mm² or more (preferably 30 mm²). The element analysis range should be from Be (Atomic no. 4) to Uranium (Atomic no. 92). Must be able to perform qualitative and quantitative analysis, Point & ID line, average area analysis, scanning, and elemental mapping.</p> <p>b)Resolution: Carbon: 52 eV or better, Manganese: 125/129 eV or better. The EDS detector and hardware should guarantee the shift in peak position and resolution <1eV over the entire count rate range.</p> <p>c) Calibration: Necessary standards and accessories for calibration must be provided.</p> <p>d) General: The EDS system must have a facility to check the variation in SEM beam current and apply corrections for the accurate elemental analysis. The EDS system must offer reliable automatic identification of peaks during real time acquiring of the spectrum. The EDS system must be using Quantification</p>

		correction algorithm for accurate elemental analysis.
20.	Essential Accessories	<p>a) High quality Chiller and Compressor. Specify manufacturer and model.</p> <p>b) Gold and carbon sputter coater with appropriate target (thread) should be quoted.</p> <p>c) Suitable UPS system (at least 10 kVA) for instrument and supporting accessories with at least 1 hr back up in full load.</p> <p>d) Critical Point dryer should be quoted for biological samples.</p> <p>e) Five numbers of conductive double sided carbon tape.</p> <p>f) Two numbers of cross-section holders.</p> <p>g) Two numbers of multi-purpose holders.</p> <p>h) 50 numbers stubs for 2 regular holders.</p> <p>i) Additional one Gold target and three Carbon targets (thread).</p> <p>j) Tweezer/gripper for holding different kinds of sample.</p> <p>k) Suitable essential tool kit for maintenance.</p> <p>l) A list of spares and consumables should be supplied along with quantity of each item.</p> <p>m) Other essential accessories for smooth functioning of the equipment if required.</p>
21.	Essential Spares	<p>a) Two extra emitters along with recommended essential spares (gasket). The replacement should be carried out on site at the earliest. The supplier should take the responsibility of preserving the emitters with them and should be supplied on demand for replacement whenever required.</p> <p>b) Two numbers of multi-hole apertures.</p>
22.	Support and maintenance	Standard support and maintenance kit is to be provided. The supplier shall provide un-interrupted supply of spares and accessories (e.g. apertures, objective caps, gaskets, seals, O-ring, fuses etc.) within the warranty period. The suppliers should also ensure the availability of the spares, related accessories, and software for smooth running of the equipment even after 10 years of expiry of warranty period.
23.	Delivery, Transfer of equipment	Supplier has to deliver the system at the installation site in the Department of Chemistry, Gauhati University. The offered price should include customs clearance charges, local transportation up to Chemistry Department, Gauhati University, and insurance charges up to Gauhati University. Gauhati University will only provide necessary documents for custom clearing (like duty exemption certificate, authorization letter etc.), road permit, etc. The supplier has to pay the custom duty (if any) which will be reimbursed by the University later on submission of the bill. It is the responsibility of the supplier to deliver the equipment including the chiller, vacuum system, computers, etc. at the site of installation. The chiller and compressor must be shipped with the main component. It may be required that the FE-SEM is

		initially installed at a site other than its permanent location, hence the shifting & re-commissioning of the equipment may be required and it will be the responsibility of the supplier to do the needful for the transfer of the equipment within 3 years of installment.
24.	Installation and commissioning	Installation and commissioning should be carried out by the supplier at the site. It is the responsibility of the supplier to take necessary steps such as integration of all the systems and ensure the functionality of the equipment.
25.	Manual	Two sets of the following manuals in English should be supplied along with the system a) Detailed user instruction manual, operation/instruction manual, troubleshooting manual, CDROM tutorials for FE-SEM, EDS. b) Detailed circuit and fault diagnostic software, detailed circuit diagram of the equipment (FE-SEM, EDS), maintenance and service manuals.
26.	Required Documents	The supplier must have sold at least 5 Schottky Field Emission SEM within India in last 5 years. The supplier must provide a comprehensive list of users of FE-SEM (Schottky Field Emission SEM) in India.
27.	Compliance Statement	The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of the features in the model of the equipment being quoted. All major NIQ specifications should be available in technical brochures. The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in the indent.
28.	Pre-installation requirement	Pre-installation requirements such as room size, tolerable limits of EM field and vibration (mechanical), required power rating; utility requirements are to be stated clearly, and to be verified/surveyed by the supplier at the installation site. It is the supplier's responsibility to clearly provide details of the above mentioned requirements before 120 days of delivery of the equipment.
29.	Training	Training of personnel from Gauhati University shall be at the time of installation.
30.	Operator	The offer should include services of a trained operator for 36 months. The supplier needs to ensure the availability of operator

		for the entire period of 36 months uninterruptedly. However, year-wise cost of providing the operator may be indicated.
31.	Warranty	36 months of comprehensive warranty for all parts including all the consumables and other accessories of the equipment. If the system breaks down during the warranty period, the warranty period will be extended for the full breakdown period after expiry of initial period. The warranty will be for the items related to both FE-SEM and EDS.
32.	AMC	AMC for a period of 5 years after warranty period to be quoted
33.	Variable Pressure (Optional)	Option for including a variable pressure mode of operation to be quoted separately.
